



U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

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REPLY TO
ATTN OF:

WD-134

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Chris Janes
Vice President and General Manager
Cyprus Thompson Creek
P.O. Box 62
Clayton, Idaho 83227

Re: NPDES Permit No. ID-002540-2
Cyprus Thompson Creek

Dear Mr. Janes:

This is in response to your comments on the draft National Pollutant Discharge Elimination System (NPDES) permit for the Cyprus Thompson Creek facility. Your major concerns are the use of the "Gold Book" criteria, application of the 25% mixing zone policy, wasteload allocation (WLA) methods, and monitoring to determine compliance with water quality standards. Discussed below are our responses to your concerns.

The major reason for the different limits in the proposed permit from the previous permit is the result of EPA's new emphasis of controlling toxic discharges as outlined in the March 1984 "Policy for the Development of Water-Quality Based Permit Limitations for Toxic Pollutants" (copy enclosed). The policy requires NPDES permits to contain limits to assure compliance with a state's water quality standards for toxic pollutants and to use biological techniques to assess toxicity impacts and human health hazards. Section 1-2003.19 of Idaho's water quality standards specify that EPA's Quality Criteria for Water (1976) and subsequent revisions be used in evaluating the impacts of the pollutants for the beneficial uses of the waterbody. The "Gold Book" criteria is a revision to the 1976 Quality Criteria for Water. Accordingly, based upon EPA's March 1984 policy, the draft permit for Cyprus was developed to contain effluent limits to assure compliance with the state's water quality standards. The standards used were based on the "Gold Book" criteria.

The permit effluent limit derivation process was based on the procedure in EPA's "Technical Support Document for Water Quality-based Toxics Control" (EPA-440/4-85-032) and the "Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants" (EPA 440/4-87-005) (copies enclosed).

In summary, the derivation process calculates the maximum amount of pollutants that can be discharged without exceeding receiving water quality standards. This is done by starting with the water quality standards and "back-calculating" to determine the permit effluent limits.

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The first step is to establish a waste load allocation of the water quality standard in the receiving stream to the outfall for those pollutants of concern. The WLA is based on the smallest dilution available (i.e. worst case situation). For Cyprus the smallest or worst case dilution is during high flows. Based on past monitoring data, the maximum river flow in Thompson Creek is 132 cfs (Fact Sheet, Attachment #3). We have assumed that this maximum flow occurs at the same time the maximum flows occur in Buckskin and Pat Hughes Creeks since the controlling factor for flows is precipitation. Attachment #5 of the July 30, 1987, Fact Sheet shows the dilution calculations. The state's mixing zone requirement allows 25% of the receiving stream for dilution. Therefore, 33 cfs (132 cfs x 25%) was used as the receiving stream flow to calculate the dilution factor of 4.8 as shown in the Fact Sheet, Attachment #5. This dilution factor represents the amount of dilution available in the receiving stream to allow a concentration of pollutants from the effluent that will not exceed water quality standards. That allowable level of pollutants from the effluent is calculated as follows:

$$(\text{dilution factor}) \times (\text{water quality standard})$$

For the prevention against chronic effects the WLA (or WLA_C) = $(\text{dilution factor}) \times (\text{CCC})$. CCC is the criteria continuous concentration or the highest instream concentration of a toxicant to which organisms can be exposed indefinitely without causing unacceptable effects. The CCC values for various pollutants are from the chronic criteria (or the four day averages) from the "Gold Book."

To protect against acute toxicity, the effluent concentrations were based on the state's standard for the protection against acute toxic effects. Section 1-2400.03(h) of the Idaho Water Quality Standards state that the concentration of hazardous materials in the mixing zone must not exceed the 96-hr. LC-50 for biota significant to the receiving water's aquatic community. The 96-hr. LC-50 value or the acute concentration can be calculated from the criteria maximum concentration (CMC) or the acute criteria from the "Gold Book." CMC is the highest instream concentration of a toxicant to which organisms can be exposed for a brief period of time without causing mortality.

In establishing the "Gold Book" criteria EPA compiled data on LC-50 (or EC-50) values for as many species as possible. Then calculated the Species Mean Acute Values and derived the Genus Mean Acute Value. The Final Acute Value is analogous to a LC-50 for the most sensitive genera (i.e. the 5% most sensitive genera, which usually includes at least 4 genera). If the most sensitive genera include organisms which are socially/economically/ecologically important, that Genus Mean Acute Value will become the Final Acute Value. The Final Acute Value is divided by 2 to establish the "Gold Book" acute criterion (or the CMC), [50 Federal Register 30792, July 29, 1985, copy enclosed]. By working backwards, multiplying the CMC by 2, the 96-hr. LC-50 for sensitive aquatic life can be approximated.

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In summary, the $WLA_C = CCC \times \text{dilution factor}$
 $= CCC \times 4.8$, and
 $WLA_a = CMC \times 2$

In establishing permit limits the permit writer does consider past monitoring data. While the past biological monitoring data do not show any violations, the proposed permit must protect for future operations and also reflect current EPA policies. Therefore, the draft permit contains the water quality-based chemical specific effluent limits and biological testing.

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Further questions on the proposed NPDES permit may be referred to Sylvia Kawabata at (206) 442-1644.

Sincerely,

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Harold E. Geren, Chief
Water Permits and Compliance Branch

Enclosures

cc: Jerry Yoeder, IDHW-DOE, Boise
Walt Poole, IDHW-DOE, Pocatello

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